WHAT IS CLAIMED IS:

1. A fuel injection device comprising:

a valve body having an inner wall in which a fuel passage is formed, the inner wall being provided with a valve seat;

a valve member having a valve coming in contact with the valve seat, the valve member being operative to close the fuel passage when the valve is seated on the valve seat and to open the fuel passage when the valve leaves the valve seat; and

an injection bore plate mounted on the valve body downstream the valve seat, the injection bore plate being provided with a plurality of injection bores through which an end surface thereof on a side of the valve seat communicates with an end surface thereof on a side opposite to the valve seat and with a step formed on the end surface thereof on a side of the valve seat,

wherein the step serves not only to guide fuel so as to flow into the injection bores from the fuel passage but also to strengthen stream of the fuel in a given direction before the fuel enters the injection bores.

2. The fuel injection device according to claim 1, wherein the injection bore plate is provided at the end surface thereof on a side of the valve seat with a first surface to which inlets of the injection bores are opened and with a second surface positioned on a side of the valve seat with respect to the first surface so that the step is formed between the

first and second surfaces, whereby the step causes the fuel to flow into the injection bores through the first surface without passing through the second surface.

3. The fuel injection device according to claim 2, wherein, after the fuel enters the first surface and hits against the step, the fuel flows into the injection bores.

4. The fuel injection device according to claim 2, wherein, after the fuel flowing on the first surface constitutes two streams in opposite directions along the step and the two streams hit against each other, the fuel flows into the injection bores.

5. The fuel injection device according to claim 3, wherein the injection bore plate has two injection bores and, further, wherein, after the fuel flows on the first surface toward the step along a hypothetical line from any point of which axial centers of the two injection bores are at equal distances and hits against the step, a stream the fuel is turned back and split into two streams each oriented toward each of the two injection bores.

6. The fuel injection device according to claim 5, wherein a distance from each axial center of the two injection bores to the hypothetical line is larger than a distance from the each axial center of the two injection bores to the step.

7. The fuel injection device according to claim 4, wherein the injection bore plate has two injection bores and, further, wherein the two streams are constituted by the fuel entering radially opposite ends of the first surface and flowing radially inward along the step so that, after the two streams hit against each other, each of the two streams is oriented toward each of the two injection bores.

8. The fuel injection device according to claim 4, wherein a distance between axial centers of the two injection bores is shorter than a distance from the each axial center of the two injection bores to the step.

9. The fuel injection device according to claim 5, wherein the hypothetical line extends substantially perpendicularly to the step.

10. The fuel injection device according to claim 2, wherein the injection bore plate is provided with a plurality pieces of the first surfaces each having two injection bores and with a plurality pieces of the second surfaces, whereby the plurality of first and second surfaces are alternately arranged circumferentially so that the step is formed between each of the plurality of first surfaces and each of the plurality of second surfaces.

11. The fuel injection device according to claim 4,

wherein a distance of the first surface in a first radial direction is shorter than a distance of the first surface in a second radial direction perpendicular to the first radial direction, two pieces of second surfaces are formed at opposite end of the first surface in the first radial direction and the first surface has four injection bores.

12. The fuel injection device according to claim 11, wherein a distance between axial centers of the adjacent injection bores is larger than a distance between each axial center of the injection bores and each of the steps adjacent thereto.

13. The fuel injection device according to claim 4, wherein the injection bore plate has a plurality of first surfaces circumferentially arranged so as to abut on one another in a vicinity of an axial center thereof, each of the first surfaces has a single piece of the injection bores and a plurality of second surfaces circumferentially arranged and each being sandwiched between the adjacent two of the first surfaces so that the steps are formed on both sides of each of the first surfaces.

14. The fuel injection device according to claim 13, wherein, in each of the first surfaces, a distance between an axial center of the injection bore and one of the steps is different from a distance between the axial center of the

injection bore and the other of the steps.

15. The fuel injection device according to claim 2, further comprising:

a fuel inflow control member disposed in the fuel passage on a side of the valve seat with respect to the injection bore plate for allowing fuel from the fuel passage to flow into the first surface.

16. A fuel injection device comprising:

a valve body having an inner wall in which a fuel passage is formed, the inner wall being provided with a valve seat;

a valve member having a valve coming in contact with the valve seat, the valve member being operative to close the fuel passage when the valve is seated on the valve seat and to open the fuel passage when the valve leaves the valve seat; and

an injection bore member mounted on an end of the valve body downstream the valve seat, the injection bore member being provided in a vicinity of a radial center thereof with a plurality of injection bores and with a guide passage including a step for causing fuel from the fuel passage to flow in at longitudinal opposite ends thereof and to flow along the step toward a center thereof to which inlets of the injection bores are opened.

17. The fuel injection device according to claim 16,

wherein the guide passage has a reducing area portion whose area is gradually smaller toward the center thereof and a enlarging area portion which is connected to an end of the reducing area portion on a side of the center thereof and whose area is gradually larger toward the center thereof.

18. The fuel injection device according to claim 16, wherein the injection bore member comprises a plurality of plates stacked on top of each other.

19. The fuel injection device according to claim 16, further comprising:

a guide member disposed between the end of the valve body and the injection bore member for guiding the fuel from the fuel passage toward the longitudinal opposite ends of the guide passage.

20. The fuel injection device according to claim 19, wherein a space is formed between the guide member and the end of the valve body and the guide member is provided with control holes through which the space communicates with the longitudinal opposite ends of the guide passage of the injection bore plate.

21. A fuel injection device comprising:

a valve body having an inner wall in which a fuel passage is formed, the inner wall being provided with a valve seat;

a valve member having a valve coming in contact with the valve seat, the valve member being operative to close the fuel passage when the valve is seated on the valve seat and to open the fuel passage when the valve leaves the valve seat; and

a control member mounted downstream the valve seat, the control member being provided with a plurality of injection bores, with a first surface to which inlets of the injection bores are opened and with a second surface positioned on a side of the valve seat with respect to the first surface so that a step is formed between the first and second surfaces,

wherein, when an axial end of the valve member is in contact with the second surface, the first surface, the axial end of the valve member and the step form a guide passage through which fuel from the fuel passage is flowed into the injection bores.

22. The fuel injection device according to claim 21, wherein the second surface comprises a pair of bow shaped surfaces between which the first surface is sandwiched so that the first surface is sandwiched between a pair of the steps in parallel with each other.

23. The fuel injection device according to claim 1, wherein each inner diameter of the injection bores is substantially uniform in thickness direction thereof.